

Translation

PATENT COOPERATION TREATY

PCT/DE2003/003584



PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2003P15434WO	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/DE2003/003584	International filing date (day/month/year) 29 October 2003 (29.10.2003)	Priority date (day/month/year)
International Patent Classification (IPC) or national classification and IPC G05B 13/02		
Applicant SIEMENS AKTIENGESELLSCHAFT		

- This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.
- This report is also accompanied by ANNEXES, comprising:
 - ☐ (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:
 - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
- This report contains indications relating to the following items:
 - ☒ Box No. I Basis of the report
 - ☐ Box No. II Priority
 - ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - ☐ Box No. IV Lack of unity of invention
 - ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - ☐ Box No. VI Certain documents cited
 - ☐ Box No. VII Certain defects in the international application
 - ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand 12 August 2004 (12.08.2004)	Date of completion of this report 30 June 2005 (30.06.2005)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

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Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on translations from the original language into the following language _____, which is language of a translation furnished for the purpose of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☐ The international application as originally filed/furnished
- ☐ the description:
- pages _____ 1-9 _____, as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- pages _____ 1-4 _____, as originally filed/furnished
- pages* _____, as amended (together with any statement) under Article 19
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the drawings:
- pages _____ 1/1 _____, as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	3	YES
	Claims	1, 2, 4	NO
Inventive step (IS)	Claims	3	YES
	Claims	1, 2, 4	NO
Industrial applicability (IA)	Claims	1-4	YES
	Claims		NO

2. Citations and explanations

1. Reference is made to the following documents:

D1: EP-A-0 710 902 (FOXBORO CO)

D2: EP-A-0 531 712 (BODENSEEWERK GERAETETECH).

2. D1 and D2 disclose methods and appropriate devices which are based on the same problem and solution as the present application (*cf. page 2, lines 16 and 17 of the description with page 2, lines 13 to 15 of D1, or with column 1, lines 10 to 12 of D2*). Both documents attempt to solve the problems of the operation of systems whose modelling is very complex, and use for this purpose an artificial intelligence method (neural network).

3. The present application does not comply with the requirements of PCT Article 33(1), because the subject matter of **claims 1, 2 and 4** is not novel within the meaning of PCT Article 33(2).

In summary, the system of D1 uses an artificial intelligence method (*a neural network; see D1, figure 6; object 152*) to produce, from measurements of operating parameters (*D1, page 2, lines 9 and 10; page 7, line 58 to page 8, line 2*), a plurality of variables (*see D1; page 8, lines 2 to 4*) in order to

control the mode of operation of the plant (see D1; page 2, lines 47 and 48).

a) for independent **claim 1**:

Document D1 discloses (the references in parentheses are to D1):

method for operating a technical system (page 4, line 28), in which, during a time interval of freely selectable magnitude, operating parameters of at least one part of the system are detected and artificial intelligence methods including at least one method selected from the group consisting of {neural network, fuzzy logic, combined neuro-fuzzy methods, genetic algorithm} (page 4, lines 34 and 35) are used to determine a mode of operation and/or mode of functioning of the technical system (page 4, line 56 to page 5, line 1) from the behaviour of these operating parameters with respect to time (page 4, line 56 to page 5, line 1).

Document D2 also discloses the features of claim 1 (see column 3, line 7 to column 4, line 8 of D2).

Consequently, claim 1 does not comply with the requirements of PCT Article 33(1).

b) for dependent **claims 2 and 4**:

Document D1 discloses all the features of these claims (see page 6, line 51 to page 7, line 1 of D1).

Document D2 also discloses all the features of these claims (see column 4, lines 20 to 30 of D2 for claim 2, and column 1, lines 23 to 37 of D2 for claim 4).

4. According to **claim 3** of the application, a confidence value, which represents a probability of the prediction for the desired mode of operation, is additionally determined for prediction purposes. A

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method of this kind simplifies the operation of a technical system and provides information concerning the possible result of a setting of the operating parameters, which can be very helpful for the user of the system.

This combination of features is neither known from, nor suggested by, the available prior art. Consequently, claim 3 complies with the requirements of PCT Article 33(1).